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AGO ltr, 29 Apr 1980

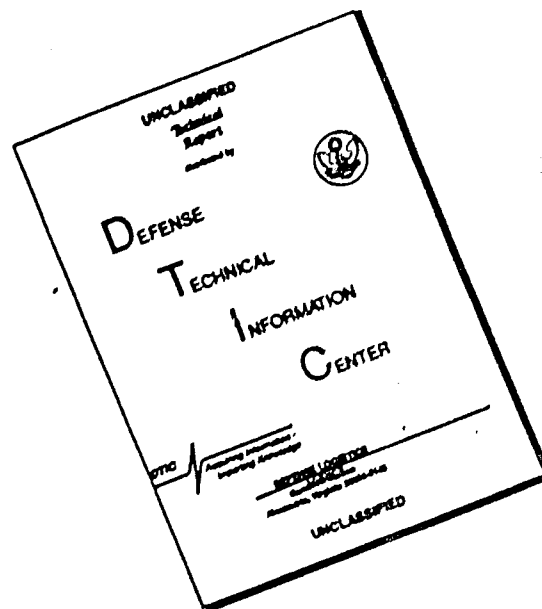
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DEPARTMENT OF THE ARMY  
OFFICE OF THE ADJUTANT GENERAL  
WASHINGTON, D.C. 20310



IN REPLY REFER TO

AGDA (M) (3 Sep 70)

FOR OT UT 702154

11 September 1970

SUBJECT: Operational Report - Lessons Learned, Headquarters, 864th  
Engineer Battalion for Period Ending 30 April 1970

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2. Information contained in this report is provided to insure appropriate benefits in the future from lessons learned during current operations and may be adapted for use in developing training material.

BY ORDER OF THE SECRETARY OF THE ARMY:

*Kenneth G. Wickham*

KENNETH G. WICKHAM  
Major General, USA  
The Adjutant General

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1



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24

DEPARTMENT OF THE ARMY  
HEADQUARTERS, 864TH ENGINEER BATTALION (CONST)  
APO 96240

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

THRU: Commanding Officer  
35th Engineer Group (Construction)  
APO 96312

Commanding General  
18th Engineer Brigade  
ATTN: AVBC-C  
APO 96377

Commanding General  
United States Army, Vietnam  
ATTN: AVHGC (DST)  
APO 96307

Commander in Chief  
United States Army, Pacific  
ATTN: GPOP-DT  
APO 96588

TO: Assistant Chief of Staff for Force Development  
Department of the Army (ACSFOR DA)  
Washington, D.C. 20310

I. Section 1, Operations: Significant Activities

A. General

The battalion's organization has remained much the same as it was last quarter (see Incl 1). The 569th TOPO Co. attached to the battalion was

FOR 07 UT

702154  
Inclosure

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

deactivated on 20 February 1970. The 687th Engr Co (LC) were continuing to move further out of our LOR so they were reassigned to the 19th Engr Bn (Combat) on 7 March 1970.

The battalion is continuing to divide its efforts between operational support missions and construction of Lines of Communications. However since the end of the monsoons the prime effort of the battalion has been on the construction of National Highways QL-1 from Ap Long Lam to the II - III Corps Boundary and QL-21 from Ninh Hoa to Ban Ma Thuot.

#### B. Commanders and Principal Staff

Bn CO	1 Feb 70 - 30 Apr 70	LTC Jack W Martin
Bn XO	1 Feb 70 - 30 Apr 70	Maj Raymond G. McDowell, Jr.
S-1	1 Feb 70 - 30 Apr 70	1LT Paul F Segert
S-2/3	1 Feb 70 - 30 Apr 70	Cpt Theodore W Yates
S-4	1 Feb 70 - 30 Apr 70	Cpt James H Traxler
Bn Surgeon	1 Feb 70 - 8 Mar 70	Cpt James R Stroehlien
	8 Mar 70 - 30 Apr 70	Cpt Luther R Boone
Bn Commo Officer	1 Feb 70 - 30 Apr 70	1LT John F McAuliffe
Task Force Whiskey CO	1 Feb 70 - 30 Apr 70	Maj William T Cooper, Jr.
Task Force 21		
C.O.	1 Feb 70 - 30 Apr 70	Maj Richard E Works
C.O., HHC	1 Feb 70 - 30 Apr 70	Cpt Robert B Pitzschler
C.O. Co A	1 Feb 70 - 8 Feb 70	Cpt Donald M Dempsey
	3 Feb 70 - 30 Apr 70	Cpt Peter L Johnson
C.O. Co B	1 Feb 70 - 23 Mar 70	Cpt William E Branch
	23 Mar 70 - 30 Apr 70	1LT Charles W Jones
C.O. Co C	1 Feb 70 - 30 Apr 70	Cpt Buford C Murphree
C.O. Co D	1 Feb 70 - 30 Apr 70	Cpt William R Washburn
C.O., 610th Engr Co (CS)	1 Feb 70 - 30 Apr 70	Cpt Gregory C Peak
C.O. 73rd Engr Co (CS)	1 Feb 70 - 8 Feb 70	1LT John H Cochran, Jr.
	8 Feb 70 - 30 Apr 70	Cpt Giuliano M Toneatto
C.O., 553rd Engr Co (FD)	1 Feb 70 - 30 Apr 70	Cpt David M Folger
C.O., 687th Engr Co (LC)	1 Feb 70 - 7 Mar 70	Cpt David S Berkman II
C.O. 569th Topo Co (Corps)	1 Feb 70 - 20 Feb 70	Cpt Robert C Swan
C.O. Co C, 19th Engr Bn (CS)	1 Feb 70 - 8 Apr 70	Cpt Edward W Wildrick III
	8 Apr 70 - 30 Apr 70	1LT John H Cochran Jr.

#### C. Company Narratives

##### 1. Company A

Inclosure

(2)

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

a. During this reporting period, the mission of this unit was oriented more and more towards one of construction support. One reason being that the Quarry Platoon is providing support for the Whiskey Mountain Industrial Complex. At the beginning of this reporting period base course was being produced with the Eagle 75 TPH primary crusher. To date approximately 40,700 cy have been produced. Concurrently the 250 TPH Cedarapids primary jaw and second cone crusher were being set up for operation. This unit became fully operational in mid-March and approximately 22,300 cy of asphalt rock have been produced by this crusher. Much effort has been expended in opening up the new quarry on Whiskey Mountain which is producing an almost ideal basalt rock.

b. The Maintenance Platoon is located in Nha Trang and is providing third shop maintenance to the entire battalion from this central location.

c. The unit was also involved in MER construction of the base camp and the upgrading of perimeter defenses to bring them up to standards. This included adding additional concertina, double apron fence and command detonated protective devices.

The operational support missions that were conducted in the Phan Thiet area included construction of O-2 Aircraft revetments at LZ Betty as well as providing equipment and operators for water well drilling operations.

## 2. Company B

a. During this quarter the Earthmoving Platoon that was attached to the 553rd Engr Co (FB) in Dong Ba Thin rejoined Bravo Company at Hot Rocks. Their mission was to aid in the Restoration of QL-21 from Bridge 30 (BQ386164) to Ban Mo Thuot (AQ816045). This platoon was needed to step up the earthwork in order to stay ahead of the paving train, as well as to finish QL-21 prior to the monsoons. The platoon has cut drainage ditches, upgraded, widened shoulders and road, and reworked complete sections of the road. Included in this work was hauling, spreading, grading watering and compacting select fill and base course. This Earthmoving Platoon has completed the upgrading of the ditches, shoulders, and roadway from Bridge 30 (BQ386164) to Bridge 35 (BQ149081).

b. On 10 April 1970, five EM with two 290's and scrapers and one grader convoyed to Bu Prang to support D Company 19th Engineer Battalion (Combat). From 5 March 1970 to 11 April 1970, two EM with asphalt distributor and water distributor supported C Company, 19th Engineer Battalion (Combat) at Duc Lap.

(3)

Inclosure

EGACDC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

c. The 1st Construction Platoon is attached to 553rd Company (FB), Dong Da Thin. They are engaged in many operational support projects in the Dong Da Thin area.

d. The 2nd Construction Platoon has currently been patching potholes on QL-21. In addition five EM completed the repair of Ban Me Thuot East Airfield (CD 205-5322-1-11) 6 April 1970. The project was divided into five different phases. Nine (9) L-shaped helicopter revetments were dismantled on the western portion of the airfield. The 20,750 sq yds of the eastern portion of the airfield were cut, filled to grade, and compacted. The area was sprayed with MC-70 supported by an asphalt distributor from 610th Engr Co (CS). 20,750 sq yds of AM-2 matting were then laid by the 2nd Construction Platoon. The western portion of the airfield consisted of 4,250 sq yds, done in the same manner as the eastern portion. Total AM-2 matting laid was 25,000 sq yds. 450 cys of base course were spread on a thirty foot strip around the east portion of the AM-2 matting and compacted. This was then sprayed with MC-70 by PA&E. Other elements of the 2nd Construction Platoon were busy constructing two steel guard towers and revetting them, repairing a living-fighting bunker, added two entrance ways to two bunkers, revetting around one sea-hut, setting three ammo boxes in the bomb and revetting around new POL storage area with drums and supporting the 610th Engr Co (CS) paving train, with nine (9) MCA LOC dump trucks.

### 3. Company C

a. A large portion of the work effort by this unit during the reporting period has been the upgrading of National Highway QL-1 from Ap Long Lan to Phan Thiet.

(1) The main effort undertaken on QL-1 by this unit involved widening the existing roadway and placing subbase and base course from AN 907215 to AN 887146 (approximately 7.25 kilometers). The sides of the existing road to be widened were cut into and benched in order to tie the existing road to the new portion of the road. A 6 in. to 12 in. layer of sand was placed along the cut portion. This process widened the road to the required twelve meters. Select fill was then placed on the sand blanket and wetted, graded and compacted in lifts up to the required grade. Base course was then placed in a 6 in lift and wetted, graded and compacted. Along some stretches of the road additional fines were required in order to produce the proper finished surface. These operations involved placing 2187 CY of sand, 24,400 CY of subbase, 17,485 CY of base course and 1440 CY of fines. In addition, 7200 CY of sand were cut at AN 902187.

(2) Twenty-two culverts, both large and small, were installed or extended between AN 912230 and AN 883141. Culverts 24 in. in diameter and larger had masonry headwalls installed, as did some smaller culverts where necessary.

(4)



EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

(3) In accomplishing the above, the following were utilized:

- (a) 26,079 United States Man Hours
- (b) 3,649 Vietnamese Man Hours
- (c) 2,730,000 gallons of water.

b. Base camp construction involved a major portion of the effort expended by the Vertical Construction Platoon. Nine living/fighting bunkers were constructed along with six guard positions which were constructed on top of the bunkers. The platoon installed five culverts with sandbag headwalls at various locations in the compound. Ten conexes were converted into living quarters in two locations. Ten old guard positions were dismantled and all possible materials salvaged. A company pre-fab yard was set up in the compound to facilitate further vertical construction. Eight tents which had served as living quarters were taken down.

c. This unit also undertook construction of various MER facilities. A company orderly room and a 2400 SF unit mess hall were constructed. A task force orderly room along with the compound dispensary were also erected. In addition vertical construction work on the soils laboratory was also completed.

d. Other activities which this unit worked on during the reporting period include:

(1) An Hai Bridge (AN879105). Most of the work on this project was accomplished by 2/D/27. The 70 ft middle span of a 3 span Eiffel Bridge had collapsed due to an oversize load. A salvaged 70 ft. Eiffel span was cut into two 35 ft. sections and was set on the existing piers by means of a flying crane. An intermediate Bailey pier was utilized. The new span was bolted and welded to the existing spans. The Vietnamese Public Works Department placed the decking and curbs on the bridge and painted it.

(2) LST Ramp (LZ Betty). Blast rock was hauled to the project site. The LCM to be used was brought to the site and the cutting of the front section was begun.

(3) Airfield upgrade (LZ Betty). On the airfield 42 pieces of PSP were replaced. The area under the matting was filled and compacted.

(4) This unit constructed for the asphalt plant at Task Force Whiskey Compound a 30 ft x 50 ft. dedraining platform, a shed with two walls and a roof to protect the hot oil heaters from dust and brought the area around the dedraining platform up to grade.

(5)

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS GSFOR-65 (R1)

#### 4. Company D

a. This report period the primary mission of this unit has been the restoration of QL-21. This included work by the Dump Truck Platoon which was involved with hauling asphalt, base course, fines, and scalping to work sites along QL-21. These work sites included actual restoration of QL-21 and the revamping of all approaches to bridges that this unit was involved in rebuilding. The Earth Moving Platoon contributed its efforts in spreading, grading and compacting of base course, and the finishing of the road to include reshaping of shoulders and drainage ditches.

b. Major work on restoration of bridges for this period centered about bridges #15, 27, 28.4, and 28.5. The majority of effort expended in these particular projects was put forth by our Vertical Construction Platoon.

(1) Work on Bridge #15 involved completion of the concrete footers, welding of connector plates and diaphragms (stiffeners). Major work was encountered in excavating around the piles to prepare for the pouring of the footers.

(2) Bridge #27. About ninety (90) percent of the construction of this bridge took place during this reporting period. The only usable portion of Bridge #27 left after enemy demolitions was the abutments. Concrete column midspan supports were constructed using existing footings to which were added extensions. The column and abutment caps were constructed and the stringers, diaphragms, and complete treadway wearing surface and handrails were placed.

(3) Bridge #28.4 was what we would like to call an expedient effort. Enemy demolitions very effectively destroyed the existing bridge. Delta rebounded by using salvaged materials and Army Engineering effort to totally replace the old bridge with a single span steel structure with wood tread wearing surface, all within two weeks.

(4) Bridge 28.5 was another enemy demolition job. Delta Company, lacking the materials for a permanent structure, erected a Bailey Bridge across the span and in just twenty-four (24) hours the entire area had been cleared of mines and booby traps and traffic was flowing unimpeded once again.

c. The last significant project in our LOC Program was pot hole repair. In an effort to repair those areas of road which had not totally deteriorated, Delta Company had a modest sized pot hole repair crew out for the greater part of this reporting period. Their work involved the squaring off of small pot holes and other imperfections in QL-21, excavation of these to the base course level and refilling with asphaltic material to bring the area to an acceptable level of usability. Almost ten (10) percent of our total job effort in man hours was devoted to this upgrading procedure.

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

(b) For most of the last month in the reporting period, virtually our entire Earth Moving capability has been TDY to B Company at Hot Rocks to aid with the QL-21 Restoration in that vicinity.

(c) To complete the comments on our LOC effort, mention must be made of our prefab yard which was involved in the fabrication of rebar and rebar cages for various of the bridge projects along with the cutting of heavy timber and lumber to fit the requirements of our various projects.

f. Projects other than those of the LOC Program occupied a small percentage of our total work effort. Their importance, however, must not be overlooked. Generally speaking, they involved work this Unit performed for other units in this command and for units of the Military Assistance Command, Viet Nam.

(1) The Nha Trang TOC was a job involving the addition of intermediate columns and beams as required to relieve the excess stress carried by the ceiling joists in the existing structure. Also included in this work was the replacement of columns, beams, and joists that showed visible signs of impending failure.

(2) The MACV projects involved the upgrading of existing facilities and the construction of new facilities. The Van Ninh project included new billeting latrines, and also, work on the existing electrical system. The Vinh Xuong project included new billets, latrine, a water storage area, and a new administration building.

(3) Along with the MACV projects, Civic Action work involves a direct person to person contribution to the betterment of the living conditions of the local people. The main civic action project was executed during the last part of the reporting period. A bridge in the local village near the Delta Company area had become impassable. The men of our Vertical Construction Platoon contributed their time and effort to help the local people construct a new, serviceable structure. The bridge was completed, mostly with local help, but our heavy equipment capability allowed rotted piles to be removed and new ones to be driven along with swinging the heavy traverse members across the stream.

#### 5. Company C/19th EBC (Cbt)

a. On 10 February, 1970, work was completed on the project at Ban Me Thuot East Field, B Battery, 5/22 Artillery, consisting of constructing four concrete gun pads, three observation towers, and appropriate drainage.

b. On 22 December, 1969, personnel from the Third Platoon began removing debris remaining from the fire that destroyed the MACV Team #33 compound. After most of the debris had been removed, work was begun on

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1).

the construction of three each frames for GP medium tents and nine each standard SEA huts. These structures were constructed on existing concrete pads. Two six inch curbs, each 18 feet long, were constructed on two sides of an existing shower pad. A 15,000 square foot parking area was prepared by first shooting the area with RS-1, then shooting it with MC-70, and finally spreading a layer of 3/4"(-) rock over the area. Construction was completed by the third platoon on 19 March 1970.

c. The 26th of March 1970 marked the completion of construction of four O-1 aircraft revetments for the Air Force at City Field, Ban Me Thuot. Begun on 12 February 1970, the mission consisted of disassembling the former revetments and constructing new ones. The new revetments were constructed in a U-shaped design. The two sides of the frame are kept from bowing by wiring the sides together using barbed wire. Three of the standard revetments were constructed as an incorporated unit utilizing side walls which are common to adjacent revetments. Each revetment provides a usable space of 44 feet by 38 feet by 8 1/2 feet.

The construction of eight helicopter gun ship revetments and three O-1 aircraft revetments was completed on 6 April 1970 at Ban Me Thuot East Airfield. The gun ship revetments were constructed in an L-shaped design, having a 60' backwall and a 36' arm running perpendicular to the runway. The three O-1 aircraft revetments were constructed as an incorporated unit. The backwall is 156' in length, and the side arms, which run perpendicular to the runway, are 36' long. All eleven revetments were constructed using M&A Matting, obtained from the dismantling of unused near-by revetments. The revetments were capped with a crowned layer of asphaltic concrete which was produced by 610th Engr Co (CS).

d. Operational Support, Duc Lap, refuel point was started 2 February 1970 and after intermittent work was completed 6 April 1970. Construction consisted of building 2 each 30' X 65' barns to house 2 each 10,000 gallon fuel bladders, and 1 each 20' X 25' pump and fuel filter bladder; and a 200' X 350' refuel area shot with a dust palliative. The bladder barns were built to a height of 5 1/2' with a 15' section of 18" culvert placed through the rear of each bladder barn to provide drainage.

After four days of supply convoys, the project of resurfacing the existing laterite airstrip at Duc Lap Special Forces Camp with a DBST was begun on 1 February 1970 and completed on 12 April 1970. The original directive, with changes, called finally for DBST on the full 3,300' of the 60' wide runway as well as existing turn-around; the two approaches, each 200' from the airstrip to the parking apron; and the 700' X 150' parking apron. The two approaches from the airstrip to the parking apron had to be widened from 28' to 40' to conform with the minimum requirements as stated in MACV Dir. 415-9 dated 12 April 1969.

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

e. From 4 February to 18 April 1970 technical assistance and necessary engineer support was provided to assist MACV personnel in occupying new quarters at Lac Thien. Aid was given in erecting the walls and installing the roof of the team house. The engineers poured the 45' X 30' concrete slab for the kitchen and dining area and a 10' X 13' latrine area. A drainage system was installed that emptied into a 8' X 8' X 4' septic tank constructed by the engineers. A leech field was also constructed. A chain link fence was then constructed around the perimeter of the compound.

f. Following the completion of projects at Duc Lap work was resumed on Bridge 21/37. The period from 9 to 30 April 1970 saw the pouring and completion, by the third platoon, of the left and right footing extensions. Two beam seat plates were cut off the existing pier and the abutment forms were layed out.

Major and Minor repairs of Lines of Communication, for the most part, took the form of replacing split and rotted treadway on Bridges 30, 32, 33, and 38 on QL-21. A temporary culvert by-pass was constructed at Bridge 28.5 following the destruction of the bridge by the enemy on the 20th of April. Periodic maintenance was pulled on the Bailey Bridge at Bridge 34. Support to paving operations on QL-21 consisted of supplying 5-ton dump trucks with drivers and shot-guns as well as drivers and shot-guns for MCA-LOC trucks of other Task Force 21 units. During the quarter approximately 12,500 cys of asphalt and base course were hauled by C/19 trucks. Ten-ton tractors with lowboy trailers were supplied to paving operations to aid in the transportation of paving equipment to and from paving sites.

#### 6. 73rd Engr Co (CS)

a. The primary mission of this unit was to setup the asphalt plant at the Whiskey Mountain Industrial site. The months of February and March were spent setting up the asphalt plant and preparing the necessary headwalls, platforms and buildings necessary to provide for a smooth operation. April marked the momentous occasion when the asphalt plant was started up and the trial mixes were made and finally the paving of QL-1 was started.

b. An important secondary mission of this unit was the general base camp construction that it performed. Some of the areas of endeavor were the construction of living/fighting bunkers and assisting in the construction of both the mess hall and the soils testing laboratory. In addition a forty foot high standoff fence is being constructed around the industrial complex. Approximately 1250 feet of chain link fence has been strung to date.

c. Also some operational support missions utilizing engineer equipment were accomplished for local unit.

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R+)

7. 610th Engr Co (CS)

a. The percentage of personnel continued to rise throughout the entire period. No critical MOS shortages are noted presently, however, at the beginning of the period many maintenance slots were vacant causing a loss of production capability.

b. Morale remains high as this unit continues to out produce other equivalent units within the Republic of Vietnam. Recognition of their achievements by the 864th Battalion Commander, 35th Engineer Group Commander and the 18th Engineer Brigade Commander has helped considerably to maintain morale among the troops. The majority of this unit's effort has been directed towards its construction support mission of producing base course for the Lines of Communications as well as the making and laying of asphalt.

c. Operations:

(1) Paving continues on QL-21 towards Ban Ma Thuot.

(2) Quarter Statistics:

(a) Rock produced	36,228 cy
(b) Asphalt produced	36,392 ton
(c) Road paved	34.125 Kilometer, double lane.

(3) Unit performed construction support for 89 days. Twelve half-days of training were conducted.

8. 553rd Engr Co (CS)

a. During the period 1 February 1970 through 30 April 1970, the 553rd Engineer Company (FD) has been used exclusively on its secondary mission of transportation support. This unit has provided transportation support for the 864th Engr Bn (Const), the 577th Engr Bn (Const) and the 589th Engr Bn (Const). Approximately 75,000 miles have been logged by 553 personnel in the transportation of construction supplies to the various battalions, during this reporting period.

b. In addition, much effort was put into rehabilitation of the company area. Storage revetments were built in the motor pool to provide protection of the POL supplies. A test tank was built to provide a testing site for bridge erection boats. More fencing, guard burkers and steel guard towers were built to up-grade the perimeter defenses.

RM/CBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, ROS CSFOR-65 (R1)

c. Units attached to the 553 Engr Co (PD) were engaged in a variety of projects. An artillery fire base was constructed. Steel guard towers, helicopter revetment, and power plant revetments were built in the Dong Ba Thin Compound. The unit was also involved in a large land clearing project west of Dong Ba Thin, RVN. Many man-hours and equipment hours were committed in support of the Dong Ba Thin Compound.

## II. Section II

### A. Personnel

#### 1. Unit Strength

a. Observation: An analysis of gains and losses of personnel in the battalion shows that gains totaled 506 and losses 295. This resulted in a net gain of 211.

2. Evaluation: These figures are misleading in that one company was deactivated and most of the personnel were reassigned outside the battalion because of their MOS. The other company was reassigned and had to be brought up to nearly 100% strength thereby using up many of the replacements needed in the battalion. In addition a TO&E change has been directed leaving the overall battalion strength at 85%.

3. Recommendations: Since the TO&E change was for the battalion and not the attached units, allocations should be processed and replacements assigned to fill construction engineer line company slots.

### B. Operations:

#### 1. Industrial Site Planning

a. Observation: When planning an industrial site some thought should be given to drainage of permanent pieces of equipment such as rock crushers and asphalt plants.

b. Evaluation: Excavating to bedrock to provide a solid foundation for permanent-type equipment may create a low spot in the immediate area which will collect water during the rainy season.

c. Recommendation: Permanent-type equipment should be located on high ground, and if necessary, either raised up by filling under the concrete pad, or by laying a thicker pad.

#### 2. Constructing bunkers near a quarry.

a. Observation: A living-fighting bunker constructed adjacent to a quarry undergoes extra heavy loads.

(11)

EGACDC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RGS CSFOR-65 (R+)

b. Evaluation: A bunker built in such area requires extra diagonal and vertical bracing.

c. Recommendation: That 6" x 6" s be used for studs and that the spacing be close.

### 3. Placing Large Culvert

a. Observation: Handling and placing pre-assembled large culvert in the proper line is difficult.

b. Evaluation: Mechanical means should be used to place large pre-assembled culvert.

c. Recommendation: That two 5 ton dumps be used to place the culvert. The culvert is rolled to a position on the road parallel and close to the installation site. Two lengths of chain are then stretched perpendicularly beneath the culvert and the ends connected to the tie down shackles in the rear of two 5 ton dumps facing back to back on either side of the culvert site. One of the dumps then moves forward making the chains taut, thereby lifting the culvert directly over the site. The dumps then back slowly, lowering the culvert into it's exact position.

### 4. Construction of Aircraft Revetments.

a. Observation: When constructing aircraft revetments, valuable time is lost and material wasted in building the frame and attaching the siding.

b. Evaluation: A quick method with material savings without sacrificing stability is desirable.

c. Recommendation: Revetments constructed utilizing "used" M3A1 matting, connected vertically to desired height and end-joined to desired length, are not common. However, an easy and effective method of stabilizing the walls has been devised. Reinforcing rod (#5 or #6), bent approximately 6" at both ends to form a 1 shaped brace, is used as cross bracing. Replacing a portion of the pins, the rebar braces not only insure a steady vertical wall but also act as locking pins.

### 5. Measurements for Internal Bracing of Concrete Box Culverts

a. Observation: When constructing concrete box culverts, it is difficult to get quick, accurate measurements for internal bracing of the inside ceiling forms. This problem is made even more difficult by the fact that no two measurements are exactly the same.



BT4CDC-3,

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

b. Evaluation: A quick method of making this difficult measurement is needed.

c. Recommendation: These measurements can be made accurately and quickly by taking two pieces of lumber, each of which are more than half of the length of the longest piece of bracing needed, and cutting one end of each to the angles needed on each end of the braces. These two pieces are then held together in the location the brace is to be placed. The boards are then slid until one end fits snugly against the ceiling form and the other end fits snugly against the wall form. A mark is then placed at the intersection point of one board with the end of the other board. The two boards are then removed to where the braces are cut and then placed in the same position as when marked. This is then a measurement which can be easily transferred to material to be used for bracing.

## 6. Overhead Drilling

a. Observation: When drilling vertical holes upward using a rock drill valuable time is lost due to the awkward position and weight of the hammer.

b. Evaluation: A quick and easy method that is both labor and time saving is desirable.

c. Recommendation: A lever and fulcrum are constructed using 4" X 4" lumber for the former and 3" pipe with an L-shaped steel plate for the latter.

## C. Training

### 1. Inexperienced Personnel

a. Observation: There is a need for bridge training in the 553rd Engineer Company (EB).

b. Evaluation: This company has a number of inexperienced personnel. Due to commitments to our secondary mission, adequate time for refresher training courses has not been provided. A bridge company cannot adequately perform its primary mission with inexperienced personnel.

c. Recommendation: That this unit be allowed time to conduct more training exercises prior to the next monsoon season.

D. Intelligence: None.

E. Logistics

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

# 1. Transportation Support

a. Observation: Customer support of convoys is inadequate.

b. Evaluation: To adequately plan and efficiently execute a convoy, lead time is necessary.

c. Recommendation: That this unit be consulted in the planning of transportation support missions. By so doing, many man-hours and equipment hours will be saved. It is also recommended that the following information be provided to this unit:

- (1) Destination
- (2) Material to haul
- (3) Amount of material
- (4) Pick-up: Time-Place-Person to contact.
- (5) Delivery: Time-Place-Person to contact.
- (6) Estimated date of return.
- (7) Security condition of route
- (8) Availability of quarters, rations, and POL.

If the above information is provided with a maximum amount of lead time this unit can make effective plans and complete the mission in a more efficient manner.

# 2. Setting up of Asphalt Plant.

a. Observation: When ordering parts it was noticed that certain engines had been replaced on the equipment.

b. Evaluation: Had the original manuals been consulted with out carefully checking the replacement items, incorrect parts would have been ordered.

c. Recommendation: That all equipment be checked to see that the proper manuals are being used to order parts.

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

F. Organization:

1. TO&E Changes

a. Observation: The construction support units are still under the 5-114 Delta (D) series TO&E.

b. Evaluation: Delta series TO&E severely limits production capability and utilization of equipment by not allowing for adequate manpower to offset equipment levels.

c. Recommendation: Units under 5-114 Delta series be converted to Golf (G) series TO&E.

G. Others

1. Maintaining Bridge Contingencies in the 553rd Engr Co (FB).

a. Observation: The bridge contingencies need maintenance.

b. Evaluation: Bridging is our primary mission. Maintenance of the bridge is inadequate due to the large commitment to our secondary mission of transportation support.

c. Recommendation: That some relief from transportation support missions be provided in order to allow more time for maintenance of the bridge sets.

2. Safety

a. Observation: When carrying trash to a dump in a populated area, the indigenous personnel may create a safety hazard.

b. Evaluation: Vietnamese nationals have no regard for the danger involved in crowding around heavy equipment, especially when trucks are dumping trash. These people will always sort through trash to find anything of value to them, and pay no attention to moving vehicles.

EGACBC-3

30 April 1970

SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RUS CSFOR-65 (R1)

c. Recommendation: A fence should be built around trash dumps, preferably a chain-link fence which will prevent any local nationals from entering the dump. If no fencing materials are available, a guard should be provided to insure that the nationals are kept away from moving vehicles and out from under trucks dumping trash.

1 Incl  
as

For *Thurmond Yates, Capt CE*  
JACK W. MARTIN  
LTC CE  
Commanding

DISTRIBUTION:

8 - 18th Engineer Brigade  
7 - 35th Engineer Group (Const)  
4 - S-3, 864th Engr Bn (Const)  
1 ea Comp ny, 864th Engr Bn (Const)  
1 ea Task Force Headquarters

EGA-CC (30 April 1970) 1st Ind

SUBJECT: Operational Report-Lessons Learned of the 864th Engineer Battalion (Construction), Period Ending 30 April 1970, RCS CSFOR-65 (R2)

DA, Headquarters, 35th Engineer Group (Const), AFO 96312, 30 May 1970

TO: Commanding General, 18th Engineer Brigade, AFO 96377

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from the 864th Engineer Battalion (Construction) and concurs with the comments and observations of the commander, with the following comments added:

A1. Replacements will continue to be assigned based on battalion wide requirements, with special monitoring being conducted for MOS specialties which are unique to particular attached units. As replacements are assigned to battalions it is within the authority of the battalion commander to further assign personnel, consistent with MOS, requirements, to subordinate units as he deems necessary.

B1. Industrial site plans submitted by battalions to this Headquarters are reviewed for, among other things, proper drainage. If drainage is not deemed adequate in plans submitted by battalions they are jointly reviewed by Group and Battalion Headquarters to insure adequate drainage is planned. On site supervision is required to insure that construction is according to plans.

C1. Closer monitoring of the 864th Engineer Battalion training program has been initiated by this Headquarters to insure that units personnel receive adequate training to successfully carry out special missions such as bridging.

E1. Closer monitoring of the 864th Engineer Battalion operations section is needed to insure that adequate information and coordination with other units occurs when convoy support is directed will be made.

E2. Closer monitoring of the 864th Engineer Battalion maintenance section will be conducted to insure that they have current status of equipment with regard to component substitution and that required manuals are on hand or obtained as quickly as possible. Equipment log books are being checked to insure that they reflect modifications required to meet operational requirements.

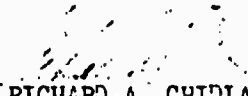
F1. This Headquarters concurs with the recommendations that units under the 5-114(D) series be converted to the (G) series of their TC&E. The additional manpower provided in the Golf (G) series will enable the construction support unit to meet the standards of production and utilization of equipment required from such a unit.

SCA-CO (30 April 1970) 1st Ind

SUBJECT: Operational Report-Lessons Learned of the 864th Engineer  
Battalion (Construction), Period Ending 30 April 1970, RCS  
CFFOR-65 (R2)

G1. Closer monitoring of the 864th Engineer Battalion maintenance and training programs will be conducted by this Headquarters to insure the battalion will be capable of performing their tactical bridging mission.

G2. The 864th Engineer Battalion has been directed to send sufficient personnel on trash hauls to insure adequate safety guards are on hand to preclude an accident. It is noted that chain link fence is not authorized for this purpose.

  
RICHARD A. CHIDLAW  
COL, CE  
Commanding

AVBC-CG (30 April 1970) 2nd Ind  
SUBJECT: Operational Report of the 864th Engineer Battalion (Construction)  
for the Period Ending 30 April 1970, RCS CSFOR-65 (R2)

DA, HEADQUARTERS, 18TH ENGINEER BRIGADE, APO 96377

TO: Commanding General, U.S. Army Vietnam, ATTN: AVHGC-DST, APO 96375


1. This Headquarters has reviewed the Operational Report-Lessons Learned for the 864th Engineer Battalion (Construction), as indorsed by the 35th Engineer Group (Construction). The report is considered to be an excellent account of the Battalion's activities during the reporting period.

2. This Headquarters concurs with the observations and recommendations of the Battalion and Group Commanders, with the following comments added:

a. Reference: Section 2, item B1. Any construction in Vietnam, where there is monsoonal weather, requires that consideration be given to drainage. It should be almost axiomatic, and failure to consider drainage implies poor engineering techniques. This Headquarters reviews all plans for new industrial sites to insure that all areas within the site receive equal attention to drainage, to include stockpile areas and quarry shelves. Saturated stockpiles and flooded quarries will easily shut down operations.

b. Reference: Section 2, item B2. Living fighting bunkers constructed IAW 18th Engr Bde Drawing 18-0908-003 dated 10 November 1969 provide sufficient diagonal and vertical bracing. Simply because a bunker is located adjacent to a quarry does not indicate that it will require additional support. Blast rock which might be hurled on to the bunker is the result of poor supervision and use of explosives. However, should this occur, adequate cover on bunkers, as required in the design, will preclude failure caused by blast rock.

c. Reference: Section 2, item F1. Reorganization of the construction support companies under the G series of TOE 5-114 requires a USARPAC General Order for approval. In lieu of this, a modification to MTOE 5-114 D would have to be submitted. USARV Letter, AVHGC-FDU, dated 12 October 1969, Subject: Moratorium on Processing TDA, MTD, and MTOE, has placed a moratorium until further notice upon submission of all such actions, except under critical circumstances.

  
H.C. SCHRADER  
Brigadier General, USA  
Commanding

19

CF:  
CO, 35th Engr Gp  
CO, 864th Engr Bn

AVHGC-DST (30 April 70) 3d Ind  
SUBJECT: Operational Report of 864th Engineer Battalion (Construction)  
for Period ending 30 April 1970, RCS CSFOR-65 (R1)

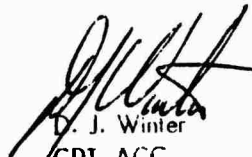
Headquarters, United States Army Vietnam, APO San Francisco 96375 7 JUL 1970

TO: Commander in Chief, United States Army Pacific, ATTN: GPOP-DT,  
APO 96558

1. This Headquarters has reviewed the Operational Report-Lessons Learned for the quarterly period ending 30 April 1970 from Headquarters, 864th Engineer Battalion (Construction) and concurs with comments of indorsing headquarters.

2. Reference item concerning "TO&E Changes," page 15, paragraph f(1): The Engineer Companies (Construction Support) referred to are presently organized under MTOE 5-114DPO2 with a strength of 4 officers, 2 Warrant officers and 137 enlisted for a total of 143. The Golf series TOE for 5-114 authorizes 4 officers, 2 Warrant officers and 160 enlisted for a total of 166. If the unit believes that it is not organized in the best manner to accomplish the assigned mission it should initiate action IAW AR 310-49 to change the current organization. The moratorium on MTOE submission referred to in 2d Indorsement was rescinded on 10 June 1970. Should the unit desire to submit a MTOE to reorganize under 5-114G it must provide suitable trade-off spaces for the increase in strength from 143 to 166. Force Development Division, G3, will provide technical advice and assistance if desired. Unit has been so advised.

FOR THE COMMANDER:



D. J. Winter  
CPI, AGC

Assistant Adjutant General

Cy furn:  
18th Engr Bde  
864th Engr Bn



GPOP-DT (30 Apr 70) 4th Ind

SUBJECT: Operational Report of HQ, 864th Engineer Battalion (Const) for  
Period Ending 30 April 1970, RCS CSFOR-65 (R2)

HQ, US Army, Pacific, APO San Francisco 96558

20 JUL 70

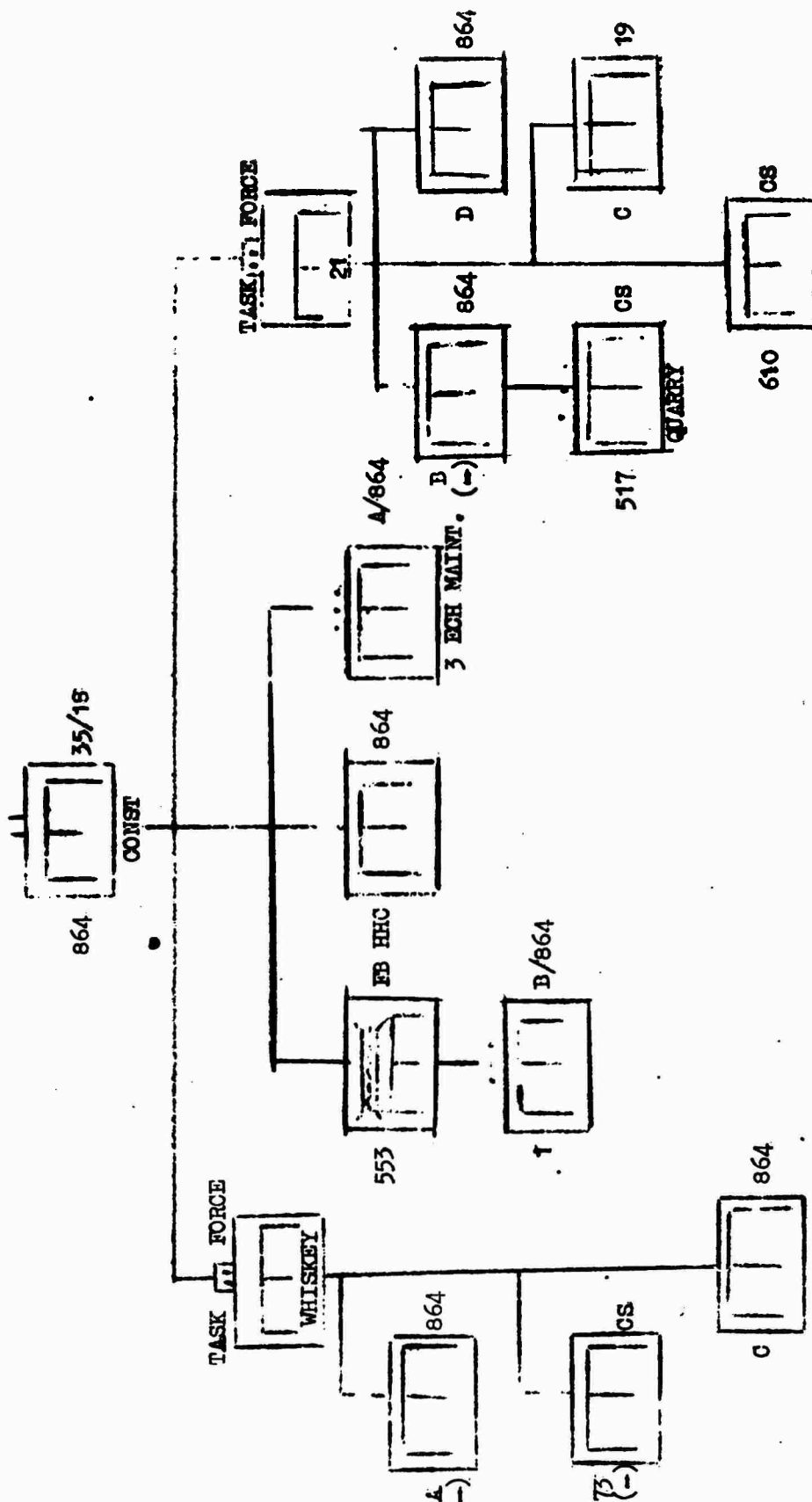
TO: Assistant Chief of Staff for Force Development, Department of the  
Army, Washington, D. C. 20310

This headquarters concurs in subject report as indorsed.

FOR THE COMMANDER IN CHIEF:

D.D. CLINE  
2LT, AGC  
Asst AG

ORGANIZATIONAL STRUCTURE 864TH ENGINE BN (CONST)



Inclosure 1

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